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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/077,692	02/15/2002	Patrick E. Hoffman	ANVI-P01-003	1447
28120	7590	06/28/2004	EXAMINER	
ROPES & GRAY LLP ONE INTERNATIONAL PLACE BOSTON, MA 02110-2624			ZEMAN, MARY K	
			ART UNIT	PAPER NUMBER

1631

DATE MAILED: 06/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/077,692

Applicant(s)

HOFFMAN, PATRICK E.

Examiner

Mary K Zeman

Art Unit

1631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 July 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claims 1-36 are pending in this application.

Priority

Applicant claims priority to several provisional applications under 35 USC 119(e).

Information Disclosure Statement

The IDS filed 8/11/02 has been entered and considered. An initialed copy of the PTO-1449 is enclosed with this action.

Drawings

The drawings and associated amendments to the specification filed 7/23/02 have been entered, and are acceptable to the examiner.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-17 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims are drawn to iterative methods of analyzing data, with no ultimate concrete, tangible and useful result. The preamble does not suggest to what end the data is being analyzed, nor do the steps lead you to any particular result. The particular vector correlations are merely reiterated until all have been "analyzed." These methods are non-statutory. MPEP 2106: "For such subject matter to be statutory, the claimed process must be limited to a practical application of the abstract idea or mathematical algorithm in the technological arts. See *Alappat*, 33 F.3d at 1543, 31USPQ2d at 1556-57 (quoting *Diamond v. Diehr*, 450 U.S. at 192, 209 USPQ at 10). See also *Alappat* 33 F.3d at 1569, 31 USPQ2d at 1578-79 (Newman, J., concurring) ("unpatentability of the principle does not defeat patentability of its practical applications") (citing *O'Reilly v. Morse*, 56 U.S. (15 How.) at 114-19). A claim is

Art Unit: 1631

limited to a practical application when the method, as claimed, produces a concrete, tangible and useful result; i.e., the method recites a step or act of producing something that is concrete, tangible and useful. See AT &T, 172 F.3d at 1358, 50 USPQ2d at 1452. Likewise, a machine claim is statutory when the machine, as claimed, produces a concrete, tangible and useful result (as in State Street, 149 F.3d at 1373, 47 USPQ2d at 1601) and/or when a specific machine is being claimed (as in Alappat, 33 F.3d at 1544, 31 USPQ2d at 1557 (in banc))."

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-9, 18-26, 35 and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by Hoffman et al. (1999).

The claims are drawn to methods of analyzing data wherein the data, having at least two categories of attributes, are mapped as one-dimensional vectors, and "correlated". The records can represent various types of data, including cells, biological markers, etc. The exact nature of the data do not affect the steps of the method. Systems and computer programs to carry out the method are also claimed.

Hoffman et al. (Hoffman et al. Dimensional Achors : A Graphic Primitive for Multidimensional Multivariate Information Visualizations. Proc of the NPIV '99 (1999) p 1-8) disclose the same data analysis methods as the invention. Data records, having a variety of attributes or parameters are analyzed using vectors that are iteratively processed to correlate and/or classify the data. Hoffman et al. disclose the RadViz computer program that appears to perform all of the claimed method steps. The programmed computers of Hoffman et al meet the limitations of the system and computer program claims. Hoffmann discloses the use of the programs on a variety of types of data, including car and miles per gallon data, Iris flower data, etc. Hoffman et al indicate that the method was used upon a biological data set of introns and exons, which meet the limitations of biological markers, gene products, and DNA.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10-17, and 27-34 are rejected under 103(a) as being unpatentable over Hoffman et al.

Hoffman et al. (Hoffman et al. Proc of the NPIV '99 (1999) p 1-8) disclose the same data analysis methods as the invention. Data records, having a variety of attributes or parameters are analyzed using vectors that are iteratively processed to correlate and/ or classify the data. Hoffman et al. disclose the RadViz computer program that appears to perform all of the claimed method steps. The programmed computers of Hoffman et al meet the limitations of the system and computer program claims. Hoffmann discloses the use of the programs on a variety of types of data, including car and miles per gallon data, Iris flower data, etc. Hoffman et al indicate that the method was used upon a biological data set of introns and exons, which meet the limitations of biological markers, gene products, and DNA. These are the steps required by the rejected claims.

The difference between the prior art and the claimed invention is the particular type of data being acted upon by the method. These claims require a set of data that is representative of a predisposition to contract a disease or medical treatment efficacy or a phenotype. This particular data is descriptive information stored on or employed by a machine. This information is fed into a known algorithm whose purpose is to compare or modify those data using a series of processing steps that do not impose a change on the processing steps and are thus nonfunctional descriptive material. The claimed invention uses known software to solve a known problem in a conventional manner. See pages 19 of the specification acknowledging known prior art computer modeling techniques (SuperViz TM) used in the methods set forth therein. Neither the specification, nor the claims set forth any special, non-obvious modifications to the known,

Art Unit: 1631

conventional software and method steps. A method of using a known comparator (e.g. computer modeling techniques known in the prior art to Hoffmann, pages 1-8) for its known purpose to compare data sets does not become non-obvious merely because new data becomes available for analysis. Nonfunctional descriptive material cannot render non-obvious an invention that would have otherwise been obvious. See *In re Gulack*, 703 F.2d 1381, 1385 (Fed. Cir. 1983) and MPEP 2106.

Requirement for Information

Applicant and the assignee of this application are required under 37 CFR 1.105 to provide the following information that the examiner has determined is reasonably necessary to the examination of this application.

The information is required to identify products and services embodying the disclosed subject matter of the methods, systems and computer programs and identify the properties of similar products and services found in the prior art. Specifically, information regarding the RadViz, SuperViz, PolyViz and OmniViz programs are required. Required information includes dates of release of all versions, features of versions, and relationship to the invention.

In response to this requirement, please provide copies of each publication which any of the applicants authored or co-authored and which describe the disclosed subject matter of multivariate information visualization methods, systems and programs. Dates publication for each are also required. The examiner has located copies of the following publications, but said copies lack the relevant publication date: Hoffman et al. Visualization for High Dimensional Data-Mining-Table Visualizations.

RadViz- Radial Coordinate Visualization and the MIV Applet

User's Guide to RadViz and MIV Applet (MIVAC)

Patrick E Hoffman Home Page (Comcast.net)

In response to this requirement, please provide the names of any products or services that have incorporated the claimed subject matter.

In response to this requirement, please state the specific improvements of the subject matter in claims 1-36 over the disclosed prior art and indicate the specific elements in the claimed subject matter that provide those improvements. For those claims expressed as means or

Art Unit: 1631

steps plus function, please provide the specific page and line numbers within the disclosure which describe the claimed structure and acts.

The applicant is reminded that the reply to this requirement must be made with candor and good faith under 37 CFR 1.56. Where the applicant does not have or cannot readily obtain an item of required information, a statement that the item is unknown or cannot be readily obtained will be accepted as a complete reply to the requirement for that item.

Conclusion

This Office action has an attached requirement for information under 37 CFR 1.105. A complete reply to this Office action must include a complete reply to the attached requirement for information. The time period for reply to the attached requirement coincides with the time period for reply to this Office action.


No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary K Zeman whose telephone number is (571) 272 0723

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael P Woodward can be reached on (571) 272 0722. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on the contents of the electronic file, or on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MAF: [illegible]
PRIMARY EXAMINER


MARY K. ZEMAN
PRIMARY EXAMINER
Jul 31 / 6/23/04